

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/224, 202 12/30/98 CARLSON

L 3123-233-1

TM02/0716

EXAMINER

DAVID M. SIGMOND  
MAXTOR CORPORATION  
2190 MILLER DRIVE  
LONGMONT CO 80501-6744

SNIEZEK, A

ART UNIT PAPER NUMBER

2651

DATE MAILED:

07/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No. <b>09/224,202</b>	Applicant(s) <b>Carlson et al.</b>
	Examiner <b>Andrew Sniezek</b>	Art Unit <b>2651</b>
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>		
<p><b>Period for Reply</b></p> <p>A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>three</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.</p> <ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> <li>- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>		
<p><b>Status</b></p> <p>1) <input checked="" type="checkbox"/> Responsive to communication(s) filed on <u>May 2, 2001</u></p> <p>2a) <input checked="" type="checkbox"/> This action is <b>FINAL</b>.      2b) <input type="checkbox"/> This action is non-final.</p> <p>3) <input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i>, 1935 C.D. 11; 453 O.G. 213.</p>		
<p><b>Disposition of Claims</b></p> <p>4) <input checked="" type="checkbox"/> Claim(s) <u>47-50, 53-58, 61-66, 87, 88, 91-98</u><sup>123, 125 and 126</sup><u>101-106, 108-113, 115, 118-</u><sup>123, 125 and 126</sup> is/are pending in the application.</p> <p>4a) Of the above, claim(s) _____ is/are withdrawn from consideration.</p> <p>5) <input type="checkbox"/> Claim(s) _____ is/are allowed.</p> <p>6) <input checked="" type="checkbox"/> Claim(s) <u>47-50, 53-58, 61-66, 87, 88, 91-98</u><sup>123, 125 and 126</sup><u>101-106, 108-113, 115, 118-123,</u><sup>123, 125 and 126</sup> is/are rejected.</p> <p>7) <input type="checkbox"/> Claim(s) _____ is/are objected to.</p> <p>8) <input type="checkbox"/> Claims _____ are subject to restriction and/or election requirement.</p>		
<p><b>Application Papers</b></p> <p>9) <input type="checkbox"/> The specification is objected to by the Examiner.</p> <p>10) <input type="checkbox"/> The drawing(s) filed on _____ is/are objected to by the Examiner.</p> <p>11) <input type="checkbox"/> The proposed drawing correction filed on _____ is: a) <input type="checkbox"/> approved b) <input type="checkbox"/> disapproved.</p> <p>12) <input type="checkbox"/> The oath or declaration is objected to by the Examiner.</p>		
<p><b>Priority under 35 U.S.C. § 119</b></p> <p>13) <input type="checkbox"/> Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).</p> <p>a) <input type="checkbox"/> All b) <input type="checkbox"/> Some* c) <input type="checkbox"/> None of:</p> <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Certified copies of the priority documents have been received.</li> <li>2. <input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.</li> <li>3. <input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</li> </ol> <p>*See the attached detailed Office action for a list of the certified copies not received.</p>		
<p>14) <input type="checkbox"/> Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).</p>		
<p><b>Attachment(s)</b></p> <p>15) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). <u>26</u></p> <p>18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____</p> <p>19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>20) <input type="checkbox"/> Other: _____</p>		

1. The following action is given in view of the amendment filed 5/2/01.
2. The information disclosure statement filed 5/2/01 has been considered.
3. It is noted that due to the amendment filed 8/7/00 there remains only two independent claims 87 and 97.
4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 47-50, 53-58, 61-66, 87, 88, 91-98, 101-106, 108-113, 115, 118-123 and 125-126 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Each of the independent claims set forth a detection circuit that determines whether the head is within an acceptable flying height range **independently** of flying height data obtained from the disk drive at “other than the substantially constant flying height”, claim 87 or at “a predetermined flying height”, claim 97.

Applicant has discussed this language in the remarks of the second preliminary amendment filed 6/1/99. In this amendment applicant discusses that Brown et al., cited in the parent application uses reference fly height values known by previous determinations such as at a zero clearance value. From these statements it is clear that applicant is trying to set forth an arrangement that uses no prior values when determining fly height. This can be seen by applicants own remarks, “Claim 87 explicitly

precludes this approach", page 16 of the amendment filed 6/1/99 and "Claim 97 explicitly precludes this approach", page 17 of the amendment filed 6/1/99.

A careful review of the written disclosure does not support applicants statements. The disclosure discusses that read signal resolution, i.e. the ability to read information at different frequencies, (page 16) is performed when the signals ( both bursts) are read at substantially the same flying height(page 17). This resolution value is then compared to a threshold resolution value, store for example in a memory. These stored threshold resolution values represent the resolution of the read signal at the maximum head flying heights (pages 21 and 28). This comparison is used to determine if the head is within a proper flying height.

It is clear from the noted locations of the written disclosure that when determining if a flying height is within an acceptable range that the determination is **dependent** upon known values (threshold or calibration) obtained from at least a maximum flying height. Therefor the language as pointed out in independent claims 87 and 97 is not supported by the written disclosure. The balance of the claims depend from one of the noted independent claims and therefor inherit the discussed claimed language.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 87, 88, 93, 97, 98, 103, 110, 111, 120 and 121 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al.

Brown et al. teaches in column 7 that two distinct frequency signals can be recorded on a single track which are then read to form a read back ratio that is then compared to a zero clearance value to determine if a head is within an acceptable fly height. This discussion satisfies all the limitations as set forth in claims 87, 93, 97 and 103. The two frequencies taught by Brown et al. are constant as set forth in claims 88 and 98. It appears that these signals are within the user data as set forth in claims 110, 111, 120 and 121.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 92, 102, 108, 109, 112, 115, 118, 119, 122, 125 and 126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. in view of Gyi et al..

Brown et al. substantially teaches the claimed invention as discussed above. Claim 92 and 102 further sets forth that the signals are recorded in the servo field. Claims 112 and 122 seem to set

forth similar limitations. Brown et al. does not specify the exact location of the recorded signals. Gyi et al. teaches in a similar arrangement that two signals of different frequencies can be recorded in the servo area, spaced laterally across a track of a disk, to determine fly height. It would have been obvious to one of ordinary skill in the art at the time of the invention to look to the teaching of Gyi et al. to determine the exact location of the recorded signals along the disk, given that Brown et al. does not specify the exact location, since both are concerned with the determination of acceptable fly heights of a head. The limitations of the signals being spaced, claims 108, 118; that they intersect a centerline of a track, 109, 119 are taught by Gyi et al. and would have obviously been incorporated in Brown et al. for reasons discussed above. The limitations of claims 115, 125 and 126 would have been obviously satisfied by the teaches of Brown et al. and Gyi et al. as applied.

10. The limitations of claims 47-50, 53-58, 61-66, 91, 94-96, 101, 104-106, 113 and 123 are allowable over the prior art of record.

The prior art of record does not teach or suggest the claimed arrangement that determines acceptable head fly height including the specific location in which the signals are recorded as set forth in claims 47, 91, 101, 113 and 123; the use of a peak count as set forth in claim 57 or detection circuit as set forth in claim 94 and 104. Claims not specifically noted depend from a claim containing allowable subject matter.

11. Applicant's arguments filed 5/2/01 have been considered but are not persuasive.

Concerning the 35 U.S.C.112 first paragraph remarks:

Applicant states that the threshold values stored in RAM 60 represent the read signal resolutions at the maximum head flying heights that will result in an acceptable performance of the

disk drive. Although this is correct, there is nothing in the specification to indicate that the "maximum head flying height" is the same as the language "substantially constant flying height" or "predetermined flying height". If applicant would amend the specification to indicate that the "maximum head flying height" is the same as the "substantially constant flying height" and "predetermined flying height" and provide a statement that this amendment contains no new matter, then the rejections under 35 U.S.C. 112 first paragraph will be overcome.

Concerning the 35 U.S.C. 102 remarks:

Applicant states that Brown et al. does not teach two signal patterns located in separate non-overlapping circumferential portions of a first track. Examiner does not agree with this statement since it is clear from column 7 lines 18-21 that the two signals can be recorded in a single track in an interleaved manner. This is the same as non-overlapping as claimed. Applicant also states that Brown et al. does not teach the claimed limitation of "independent" of flying height data other than the "substantially constant flying height" or "predetermined flying height". In view of the 35 U.S.C. 112 first paragraph rejections the rejections under 35 U.S.C. 102 are deemed proper. If applicant overcomes the 35 U.S.C. 112 first paragraph rejections in a manner as discussed, then it would appear that the rejections under 35 U.S.C. 102 could be replaced with rejections under 35 U.S.C. 103 since both the claimed invention and that of Brown et al. must have a reference value in order to determine if the head is at an acceptable flying height. In Brown et al. using a zero spacing value a absolute flying height (reference value) can be obtained at normal operating velocity (column 5). At this normal operating velocity the head would be flying at a substantially constant height, i.e. maximum height in which an acceptable performance of the drive can be achieved. In the claimed

invention, it appears that the reference value is that value obtained from a maximum flying height of the head, i.e. a flying height in which the head is at a substantially constant flying height. This value although not referenced to a zero flying height must be first determined just like that of Brown et al. before any further fly height detections are made. Such variations would amount to obvious variations of one another.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Sniezek whose telephone and VoiceMail number is (703) 308-1602. If a plurality of attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Hudspeth, can be reached on (703) 308-4825.

The appropriate fax phone number for the organization (Group 2650) where this application or proceeding is assigned is (703) 308-9051.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

*Andrew J. Sniezek*  
**Andrew L. Sniezek**  
**Primary Examiner**  
**Art Unit 2651**

A.L.S.  
July 13, 2001